NEERING ROOM

ELECTRICITY on the FARM

The National Magazine of Rural Electrification

JULY, 1943

THIS MONTH—

Farm Water System Maintenance
Cooling Systems for Hens
Reassembling Cleaned Motors
Rope Drag Grain Elevator
Machines Boost Our Milk Supply
A Lazy Man's Hand Sprayer
Home Rigged Power Saws
Important Points on Canning
Night Shift on the Ironer

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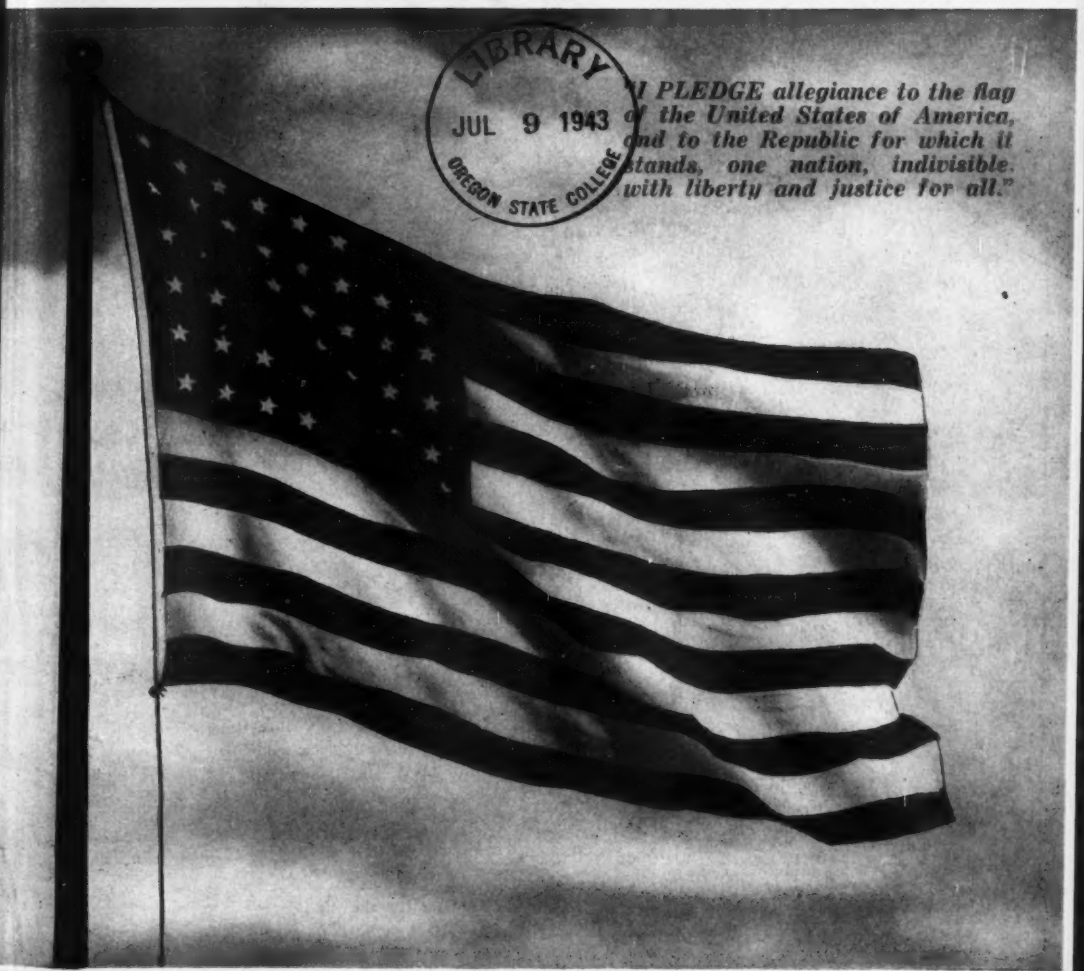
"I PLEDGE allegiance to the flag
of the United States of America,
and to the Republic for which it
stands, one nation, indivisible,
with liberty and justice for all."

A CASE – SHEPPERD – MANN PUBLICATION

SEED MONEY

TO anybody who has ever harvested a crop, the importance of putting aside enough money for next year's seed is obvious.

Although G-E turbines and lamps and refrigerators don't grow from any seed you can buy at a seed store, yet any manufacturer—no matter what he makes—has a seed problem just the same. For improved designs, and new products all cost money. Money for research, and engineering, and new tools, and advertising to tell the public that a better product can be obtained, and how much it will cost.

And the only place this money can come from is out of past earnings, or borrowing on the promise of earnings in the future. In other words —from *seed money*.

From the seed of research and engineering, planted in years past by General Electric, have come some pretty amazing crops. Incandescent lamps five times as efficient as Edison's, electronic tubes that made broadcasting possible, refrigerators for the home and electric machines for industry to make all jobs easier.

Right now the crops we're growing are all of the "Victory Garden" kind—weapons that are serving with our armed forces on land and sea and in the air.

But we mustn't neglect the seed money for the future—money, put away now, to convert factories after the war to the more abundant production of the things for better living, and to make possible research and development for new and better products than we now know.

Only if manufacturers are allowed to put away seed money today will it be possible to have a richer harvest of peacetime goods to share tomorrow. General Electric Co., Schenectady, New York.

Tune in the General Electric MAZDA Lamp Radio Program—10:00 p.m. EWT, Sundays—NBC.

GENERAL ELECTRIC

969-22R-211

Editor's Chat

MILK SOURING MUSIC

At times in the past we have given accounts of the beneficial effect of radio music on cows and hens. It was soothing, sweet and stimulating. Please do not hold us responsible now if the cows give sour milk. The milking-time moans, blues and discords that are flung over the air as music are enough to sour anything; and how a cow can listen to that Jitter-bug stuff without giving butter and casein glue is more than I know. If the cows seem to be having a nervous breakdown, try tuning in a battle in Europe. That should be quieting in comparison, and stimulating to war production.

CAUGHT WITH OUR PENS DOWN

A few years ago we had great quantities of scrap steel penned up in our junk yards. We sold it to Japan. We had an ample supply of farm labor at wages and with good food that balaneed the attraction of the city. It has jumped over the fence to war plants or the fence has been broken down by the draft. Great stocks of stored grains have been disappearing so fast that the prospects for hogs and chickens this fall looks dubious. Our machine sheds have not been adequately stocked for increased production with a labor deficiency. Milk cows have gone to the butcher. In addition to the other farm handicaps, the system safeguarders have jumped into the farm lot with blanks and questionnaires and restrictions that make it doubly hard for a working man to work effectively. Our pens were down.

What is past is past. The Government can help production considerably by removing some of the restrictions and red tape and placing more confidence in farmers, dealers and others at the "grass roots," and less in the earnest but embryonic and theoretical multitude at government desks. If the farmers and common people had the *confidence* instead of the rulebooks of the government in this war effort we could devote a larger percentage of our energy to production and less to trips to Washington and to reading regulations. It is your war and mine as well as Chief Multigraph's.

Let's keep our pens up now as best we can. Anticipate needs. Cooperate with neighbors. Keep equipment in repair. Save what we have.

Each year there is an enormous waste of cull and excess products on farms. Perhaps local organizations of the Red Cross or Scouts would harvest those waste apples and small potatoes without tearing down your fences or swiping your prize grapes. From the present appearance of the stores and the writhings of the OPA, someone will need that food next winter.

PERSONAL THERMOSTAT

Yesterday I was discussing with a designing engineer the construction and placing of a thermostat for a small dehydrator to insure the heating up of the food but to prevent overheating with accompanying injury to the dehydrated products. It is a fairly simple matter to control the air temperature in a dehydrator, but not so simple to control the food temperature. There's a difference. The air temperature may go up to 180°, but so long as moisture is being evaporated freely from the food it will remain relatively cool, possibly 50° cooler than the air around it. As the food dries and evaporation diminishes, the food temperature approaches that of the air. All the time the air temperature has been constant.

You probably have many thermostats in use on your electrified farm. There is an adjustable one in the refrigerator. The incubator, the brooder, the range oven, the roaster, the electric iron, the ironer, the water heater, the poultry water warmer all have them. So do you.

There is no more perfect heat controller than your *personal thermostat.* It is automatic. I do not know what it looks like or where it is located, but you have it. No matter whether the outside air temperature is 40 below or 110 in the shade, your personal thermostat keeps your body heat at 98. And it does it no matter whether you eat ice cream or hot soup, or stoke "the boiler" with fats and sugars or lettuce and grapefruit. Then, if disease attacks your body, Nature sets up your thermostat to a few degrees of fever until the germs are burned out, then sets it back to 98.

Men do some marvelous things, but we have much to learn.

—I'm proud I am a farmer!—

Geo. W. Kable

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We're putting every spare dollar in WAR BONDS

YES, we're doing without a lot of things we'd like to have these days—repairing the old machinery and home furnishings to make them last the best we can—and every possible dollar goes into War Bonds. When we sell crops or livestock we add to our War Bond stake for the future. While helping bring Victory, these bonds insure our share in the fruits of victory—better, more modern equipment, like a Hotpoint Electric Kitchen. That will make today's skimping well worth while!

Edison General Electric Appliance Co., Inc.
5610 West Taylor Street, Chicago, Illinois

...someday they'll buy us a KITCHEN like this!

SKYLARK FARM KITCHEN

Every War Bond you put aside today means *more* equipment tomorrow for that Hotpoint Electric Kitchen you want! This convenient, roomy kitchen with Hotpoint Electric Range, Refrigerator, Electric Dishwasher, Hotpoint Sink and Steel Cabinets will make life more pleasant, *in* and *out* of the kitchen!

For Outstanding Achievement in War Production

Buy War Bonds Today . . .
An Electric Kitchen Tomorrow!

ELECTRIC Hotpoint KITCHENS

Care of Electric Farm Water Systems

By NORMAN J. RADDER

IT'S a huge job that American farmers have this year and next. To do this job, farmers are counting heavily on their electric farm water systems because running water means greater production with less labor.

Some Facts About Running Water

More food can be produced with fewer manhours of work on farms where an abundance of water is on tap at convenient points for supply to farm animals and farm crops.

Running water saves labor and time. Running water is one of the most dependable hired helpers that the farmer can engage, as well as one of the most economical.

Running water is one helper that doesn't ask for time off and never complains about long hours yet works day after day, year after year, at a cost of about one-half cent per 100 gallons, pumped and delivered at the spot where it is needed.

Because of the importance of running water in a wartime economy, it is advisable for every owner of a farm water system to know exactly what he should do to keep his system in good operating condition. Suggestions on the care of farm water systems are offered in a new free booklet published by the Electric Water Systems Council. The title of the booklet is "Timely Tips on Wartime Care and Maintenance of Electric Farm Pumps and Water Systems."

The manual is written in easily-understood, non-technical language and has sections on the following important subjects: motors, belts, lubrication, priming, pressure tanks, air volume controls, pressure switches, and stuffing boxes.

The booklet offers suggestions on what to do to correct conditions causing frequent starting and stopping of a pump and when the pump runs but fails to deliver water or does not deliver full capacity. What to do when air spurts from faucets or when operation is too noisy is also explained.

Copies of the manual may be obtained without charge from county agents, power companies, and manufacturers of electric water systems.

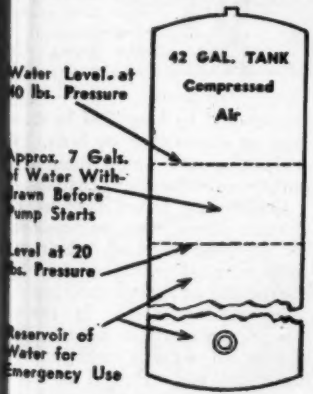
Here are some tips for water system owners taken from the manual:

Watch particularly the condition of the oil, undue water leakage, unfamiliar noises, and the air supply in the pressure tank.

The useful life of any mechanical unit depends on proper lubrication. To be certain that your pumping equipment is properly lubricated, you should refer to the instructions furnished with your pump or water system.

Use oil of good quality and of such gravity as recommended by the pump manufacturer. Light and medium gravity oils flow more freely through oil channels than heavy oil.

Pumps equipped with enclosed oil bath should be oiled once or twice a year, depending on the severity of operation. Between times, oil should be inspected for freedom from dirt and dilution unless pump is carefully housed.


42 GAL. TANK
Compressed Air
Water Level at 40 lbs. Pressure
Approx. 7 Gals. of Water Withdrawn Before Pump Starts
Level at 20 lbs. Pressure
Reservoir of Water for Emergency Use

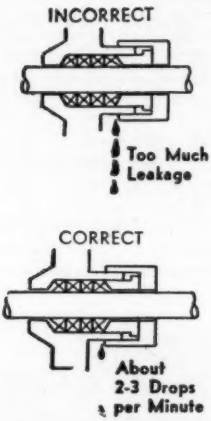
There must be a proper balance between air and water in the pressure tank for the system to operate properly and without overworking the motor. The compressed air forces out the water when the motor is not running.

Loose Belts Wear Out

Rapid belt wear is often due to loose belts which slip on the motor pulley. Belt squeak is frequently an indication that the belt is slipping. Most belts should be adjusted so that the belt may be pushed down ½ inch in the center of span *when motor is not running.*

Unmatched belts on units

equipped with more than one belt cause abnormal wear. Oil and grease spilled on belts result in faster wear. When it is necessary to replace one belt, it is better to replace both, if possible, saving the other belt for a standby.



Stuffing boxes should leak about 2-3 drops per minute to lubricate the packing. If it leaks more, screw down the packing nut until the leak stops, then back it off ¼ turn.

Never put oil on a belt.

Proper functioning of the water system requires that the pressure tank contain approximately two-thirds water and one-third air at cut-off pressure. If this proportion of water to air is out of balance it may cause the switch to cut in and cut out and the motor to run too frequently.

Pressure tanks are usually equipped with either a combination water and pressure gauge for indicating the amount of air in the tank, or an air volume control which automatically controls the amount of air required.

If the combination water and pressure gauge indicates that there is not enough air in the tank the cap on the air valve should be removed temporarily to permit more air to be pumped or adjustments made to other air charging devices in order to accomplish this purpose.

A leaky stuffing box does not necessarily mean that it needs repacking. A small amount of leakage helps to properly lubricate the packing.

To take out old packing, stuffing box nut and gland must be removed. The packing can then be caught and removed by using a small hook which can be put on the end of a stiff wire and pointed for this work.

In repacking, use the type of packing recommended by the manufacturer of your pump. Fill the stuffing box with as much packing as it will hold.

Examine Valves and Plungers

By examining the valves or plunger leathers you can determine whether the valves are seating properly or whether the leathers are worn, allowing the water to leak past the crimp. Usually the installation of new valves and leathers will overcome this condition.

It is recommended that new gaskets be used on all water end repair jobs. These items are included in repair kits available from dealers. A handy repair kit will pay for itself many times over. Such things as piston packing, leather and fibre gaskets, plunger cup leathers, are items requiring occasional replacement and to have them on hand saves time and expense—and hurried trips to town.

Noise in a pump is often hard to locate. Here are a few of the most common causes:

a. Foreign matter partially clogging suction line.

b. The set screws holding motor and pump pulleys may be loose causing the pulley to rock on the shaft.

c. Pressure tank having insufficient air.

d. Valves sticking to valve seats or power end parts badly worn in the case of shallow well pumps.

e. If steel well rod is used for a deep well pump, it may be whipping against the drop pipe or bearings and gears in crankcase may be worn.

Unless pumping equipment is easily accessible for regular inspection, it is certain to be neglected. To this end, convenient entry should be provided, preferably through the roof of the pit. This entry should be sufficiently large to admit a man and should be centered directly over the well, unless the entire pit roof is removable. This facilitates the withdrawal of pump rod, cylinder, or even the pump when necessary. A short ladder or other means of getting in and out of the pit is suggested.

Should you find it necessary to write the manufacturer of your water system, be sure to identify the unit by giving the model, size, etc., for which parts are needed and specify the correct parts number. Iron and brass castings usually bear a parts number which should be checked with the repair list. Such parts as brass shells, leathers, etc., without parts numbers should be identified by drawings or dimensions or both. Always give the pump number or parts number of main castings.

Leaky faucets, water closet valves or pipes will cause frequent starting and stopping of the pump with waste of power.

Owners of water systems and dealers share the responsibility for keeping existing water systems in good operating condition during the war when the supply of new water systems is limited. These suggestions made above are in no sense a substitute for the expert knowledge of the dealer.

When major repairs are necessary, call in your dealer. Don't take chances with your equipment. No manual can tell you when your job of servicing stops and where your dealer's begins. Here's the safe guide: It's always best to call on your dealer for assistance when any trouble occurs that cannot be remedied by simple repairs or adjustments.

Small Rope-Drag Grain Elevator

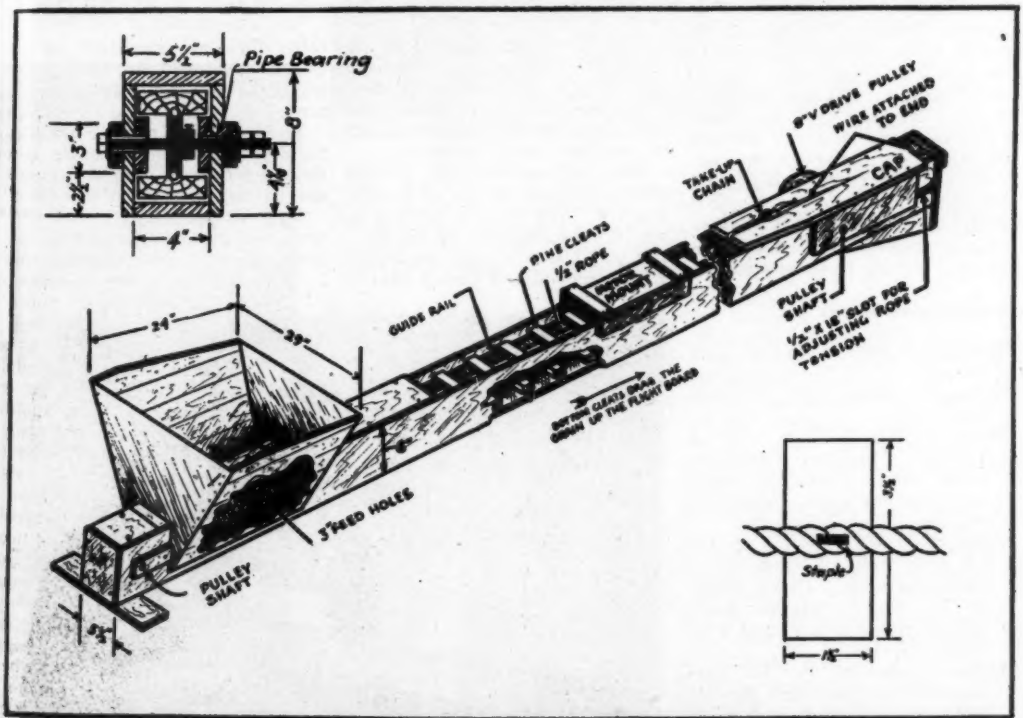
By H. J. GALLAGHER
Consumers Power Company,
Jackson, Michigan

Elevator in use with rope drive from motor.

I HAVE a son who is a graduate electrical engineer and who is employed in a vital war industry of one of the large manufacturing companies of the nation. I am glad that he is an engineer and rendering service to his country. I would have been better pleased had he contributed to the war effort by taking over the operation of the home farm in Southern Michigan and had a degree in agriculture rather than engineering. He didn't like farming and I appreciate his veiwpoint because when we lived on the farm electric service was not available and the work was done, or never done, on the good old fashioned treadmill of drudgery.

In reviewing some of the farm jobs that were particularly obnoxious, handling grain from the thresher has a prominent place. We raised a quantity of oats and wheat, and whether the threshing was done from the field or from stacks, the machine was set so the straw could be stacked in the barnyard. The grain had to be carried some 50 feet from the bagger of the machine to the granary, it took three steps upward to enter the granary, and after the bins were filled shoulder high additional height was gained by stepping on an inverted potato crate. From this point on it was also necessary to shovel the grain back against the opposite wall to fill the bin.

This method, commonly em-



Construction details of the elevator. The hopper slips over the elevator and is removable. Upper left is a cross section through the lower bearing. Lower right shows rope stapled to cleat.

ployed throughout the country today, requires an excessive amount of labor—requires extra hands that will not be available this year. A partial solution to the problem, and one that will at least save extra hands, is to elevate the grain mechanically. This is especially true with combine operation and overhead storage.

During the past decade there have been a large number of homemade elevators in use that have given satisfactory results. The design of many of these elevators calls for critical materials or materials difficult to get. To meet this situation, Dennis McGuire, rural service engineer of Consumers Power Company, designed a wartime elevator that can be built from materials readily available in any community. The principle of operation is to drag grain up an inclined wooden trough by the use of wooden cleats on a rope conveyor that passes over a V pulley in each end of the trough. The efficiency of this elevator may not be as great as some other designs of inclined elevators. Its advantages are in the fact that it is easy to construct, materials are available, and it gave satisfactory operation without clogging with both combines and threshers on a number of Michigan farms last summer.

In addition to elevating grain into bins, grain can be removed from bins by lifting off the hopper and placing the foot of the elevator in the bin to be emptied.

Construction Details

Trough—Bottom board 4", side boards 8".

Conveyor Rope—Size ½". Use long splice.

Cleats—Size 3½" x 1½" x 13/16". Suggest ponderosa pine. Staple cleats 3½" apart on conveyor rope. Use 1½" staples.

Pulleys—3" V pulley in center of each end of trough for conveyor rope. Drive pulley 8" V. Pulley may be made of two pieces of plywood with edges beveled.

Drive Shafts—½" by 10" carriage bolt. Cut extra threads for jam nuts and washers if drive pulley is made of plywood. Lower end shaft ½" x 8" carriage bolt. File flat spots on bolts for V pulley set screws.

Bearings—½" pipe or conduit set in wood blocks. Provide oil holes.

Guide Rails—⅞" x 3" nailed inside each side of trough between upper and lower cleats. Round the ends so cleats won't strike.

Feed—Five 3" holes on each side to feed grain from hopper into trough.

Rope Tension—Mount upper pulley shaft in sides of cap. Cap slides on elevator so upper shaft slides in ½" x 18" slot cut in sides of trough. Attach harness breast chain to top of cap. Fasten No. 9 wire to chain, pass through slit cut in top of cap and attach to end of trough. Adjust breast chain for proper rope tension.

Motor—Type, capacitor or repulsion-induction. Size ¼ hp up to 18' length of elevator. 1/3-½ hp for lengths exceeding 18'. Use 3"-3½" V pulley on motor. ⅜" rope belt with a long splice, may be used from motor pulley to drive pulley if rubber V belt is not obtainable.

Capacity—100 to 300 bushels per hour, depending upon kind of grain, length of trough, and angle of elevation. Angle of elevation should not exceed 60°.

Canning Fruit in an Electric Dairy Sterilizer

By C. L. MILLAM
Pacific Gas & Electric Co.,
Sacramento, Cal.

Mrs. Ernest Kneppel of Rt. 1, Box 1440, Elk Grove, California, uses a No. 2 Wellman 5 KW Dairy Sterilizer to pack her season's fruit when it is not in use to sterilize dairy equipment.

The packing of fruit at the Kneppel ranch is an all-electric process. The fruit is grown in an orchard irrigated by an electric pump, the jars are washed in water pumped and heated electrically, they are sterilized in an electric oven and the final cooking is done in the electric sterilizer.

The method of packing fruit in the sterilizer is quite simple and should prove of interest to any one having this type of sterilizer.

Mrs. Kneppel fills her jars with fruit and syrup, screws the tops down, giving them a quarter turn . . . . . (More on page 21)

HOW TO CLEAN ELECTRIC MOTORS

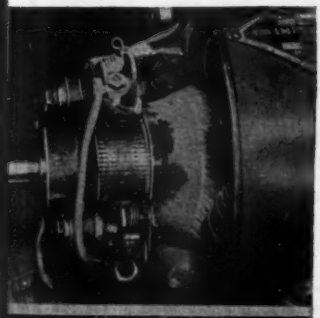
(In Two Parts—Part 2)

By DR. FORREST B. WRIGHT
Agricultural Engineer, Cornell University, Ithaca, N. Y.

PART I told how to take motors apart for cleaning, how to mark or identify the parts for reassembly and the preliminary steps in cleaning by blowing or sucking out the loose dirt and brushing the parts with a clean paint brush. It was printed in the June issue, pages 10-12.

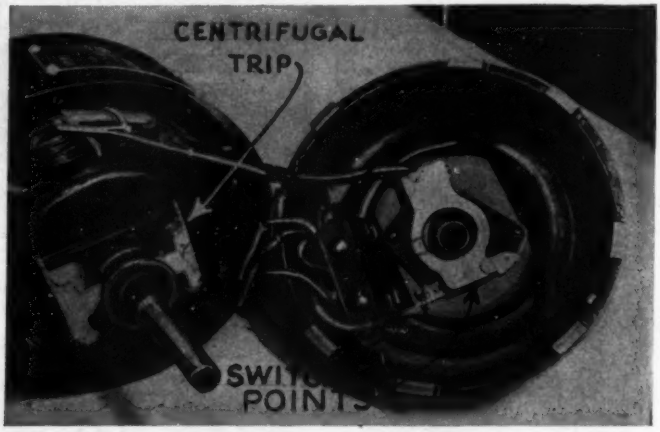
Examine Parts for Needed Repairs

1. While the motor is apart examine it for possible needed repairs. Repair any damaged insulation on the wires, cord and coils. Examine the starting switch, if there is one. If the points are pitted or rough, file them smooth. If badly burned they may need to be replaced. If the motor has a commutator and brushes, examine them for wear. A commutator that is quite rough or worn should be taken to a repair shop and turned down on a lathe. If the commutator is only slightly rough, it may be turned down with a strip of fine (2/0 or 3/0) sandpaper drawn around it, or better yet held against the commutator while the rotor is turned in a lathe. *Do not use emery cloth* on a commutator as the emery dust may short circuit the copper bars. If the brushes are worn out they should be replaced with new ones.



Above: A dirty and rough commutator.

Below: The same commutator after cleaning and turning down in a lathe.



End shield removed from a split phase motor showing the centrifugal starting switch. Repulsion-induction and universal motors—those having carbon brushes do not have these switches. If the spacer washers on the opposite end of the shaft have worn badly the starting switch may fail to close and the motor will not start. Replace with fibre washers until there is no more end play in the shaft than the thickness of a handsaw blade.

2. If the bearings are of the sleeve type try them one at a time on the shaft as shown in the illustrations to determine whether or not they are loose. If there is play, new bushings should be installed. The bushing on the pulley end usually wears out first.

To Re-assemble the Motor

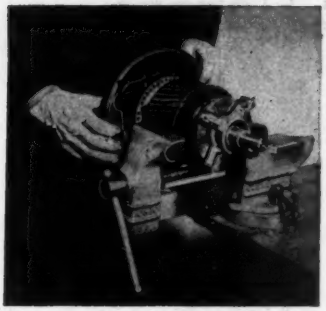
1. Before re-assembling the motor, be sure that all parts are clean, especially the bearings and the shafting.

2. Before replacing the shaft in a bearing be sure that the fiber spacer washers are in place. If the motor had too much end play add one or more spacer washers of the proper thickness. This is especially important on split-phase and capacitor motors because too much end play may cause the starting switch to fail to operate.

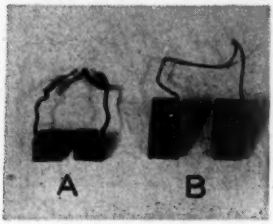
3. Make sure that the bearing hole is free of packing or wicking. Oil ring bearings should be turned upside down to place them on the shaft.

4. Place a drop or two of oil on the shafting so it will slide easily into the bearing.

5. If the motor has a starting switch the end shield to which the switch is attached should be replaced on the stator before the rotor is replaced. After this end



Testing the looseness of a sleeve bearing. Place the end shield over its end of the shaft in normal working position, then wiggle the end shield by hand to test the looseness of the bearing. If the edges of the shield move as much as ¼", the bearing needs a new bushing. Get it from or have it put in at a motor repair shop. If not available locally it may be ordered where you bought the motor or from the manufacturer.



Worn out brushes at "A". New brushes at "B".

shield is in position be sure that the wires attached to the switch are folded back out of the way of the rotor and more particularly away from the starting switch.

6. If the motor has brushes, take them out of the guides or release the spring pressure and push them back in the guides so that they will not be broken by the end of the commutator. Replace the brushes and spring pressure after the end shield and commutator are in place.

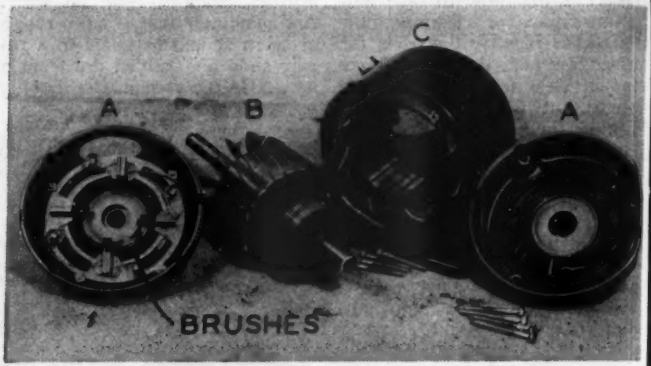
7. Place the rotor and both end shields in position. Turn the end shields to their marked positions. Start the end shield bolts or screws and turn them up finger tight. Tap lightly around the end shields with a mallet until they are fairly tight. Tighten the screws or bolts, each one a little at a time until all are brought down together. The end shields must fit exactly or the bearings will bind on the shaft.

8. Make sure that the shaft turns freely. If it does not, recheck the tightness of the end shields.

9. Be sure that the oil wicking or packing, if any, is pressed down on the shaft so that oil will be fed to the bearing. If the bearings are ring oiled be sure that the oil ring is riding on the shaft and is free to turn.

10. Check the amount of end play on the shaft. About 1/32 in. is satisfactory for small motors. Some motors, particularly ball bearing motors, may have no end play. This fact will be evident upon examination before the motor is taken apart.

11. If there are brushes, replace them in their original positions. If new brushes are installed be sure that they fit the brush guides, and in case the commutator is of the cylinder type the ends of the brushes should be fitted to the commutator. If the commutator is accessible from the outside after assembling the motor, a thin piece of fine sandpaper drawn under



A repulsion-induction motor cleaned and ready to be reassembled. At "A" are the end shields. The brushes will have to be pushed back in the shield at the left so they will slip over the commutator. "B" is the rotor with fan and commutator built on the shaft. "C" is the frame or stator.

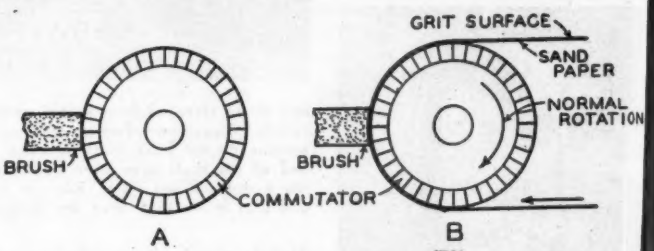
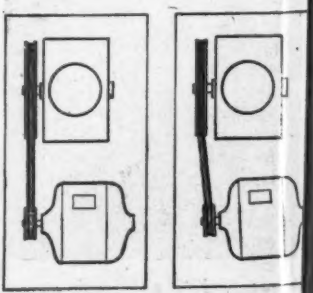


Diagram showing how to shape brushes to the commutator. At "A" is a new brush with a square end. At "B" the brush is being shaped by putting a strip of fine sand paper over the commutator and pulling it under the brush. Pull through in the direction the motor runs only.



Pulleys that are out of line wear out the belts and the motor and machine bearings. They also waste power.

After running for awhile under its normal load, the motor should feel warm, but not uncomfortably hot to the hand.

the brushes in the direction of normal rotation of the commutator will cut the brushes to fit. Sandpaper can be made thinner by peeling about half the thickness of the paper off the back.

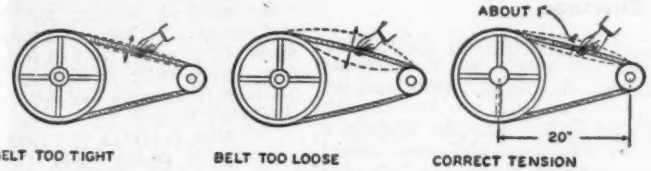
12. Connect the motor to a circuit momentarily to see if it will start and run normally.

13. Replace all accessory parts including the pulley.

14. Place the motor back in its working position and reconnect it to its load. Be sure that the pulleys are lined up and that the belt tension is correct.

15. Oil the bearings. (See previous articles in this magazine.)

16. Connect the motor to the circuit and run it under load for fifteen or twenty minutes to see that it runs normally and without heating. The motor should feel quite warm but not uncomfortably hot to the hand.



Testing V belts for tightness. If too tight they wear out belt and bearings. If too loose they slip on the pulleys, wear out the belt and lose power.

Importance of Safety In Wartime Farming

From an Address by Secretary of Agriculture, Hon. Claude R. Wickard, on the National Radio Forum.

Farm accidents each year are taking a terrible toll. More than 4,500 persons were killed and approximately 225,000 were injured while engaged in farm work in 1941—that's the last year for which the complete estimate is available. Of the injured, about 15,000 were crippled for life.

In 1943, if we do not take precautions, the number of farm accidents may increase. Farmers will be working harder to meet their war production goals and will be getting along with more inexperienced workers and often with old machinery. Longer hours, night work, fatigue, and the urge for greater production may cause them to neglect the extra caution that must be observed under such conditions. . . . We must do everything we can to conserve our farm manpower. . . .

In most areas machinery causes the greatest number of farm accidents. Tractor accidents head the list. Injuries by farm animals are second. . . . Farmers who do not have enough experienced help often will find it necessary to trust tractors to unskilled operators, whether the farmers like to do so or not. If they can't avoid this, they can at least reduce the possibility of an accident by giving safety instructions. Combines, binders, mowers, corn pickers and threshers all have danger points in their operation. . . . Most farmers are more careful with their work animals than with their machinery. . . . If repairs or adjustments must be made in front of mowers, disks, harrows, and other dangerous equipment, unhitch and tie the team. . . .

Heat sickness and prostration probably will cause new farm workers from towns and cities to lose a lot of production time this summer. Gradual seasoning of these people to heavy work in the hot sunshine will be necessary. They will need proper protective clothing, frequent rest periods at first and the use of salt to replenish that lost through perspiration.

The Department of Agriculture is greatly interested in farm safety work and in reducing to a minimum the huge annual toll from preventable farm accidents. We are glad to cooperate with the National Safety Council in its program of accident prevention. We hope to increase our assistance to farmers in this field. We recognize, however, that the experienced farm operators will have a greater responsibility for safety observance this year than they have ever had before.

Today's Safety Hint

Is your dug well or the cesspool safely covered? Wood covers rotted from underneath may still look strong. Farm help unfamiliar with such pitfalls may come to grief, children may curiously pry off boards and fall in. Insurance will not resuscitate a drowned person. Check those covers now, replace them with new wood or better still, concrete. Don't take a chance.—*W. C. Krueger.*

"Records show that soiled eggs bring from seven to 12 cents less per dozen than clean eggs of the same quality."—Dr. W. C. Thompson, N. J.

A one-way street is one on which the motorist is bumped from the rear only.

★ ***Buy War Bonds*** ★

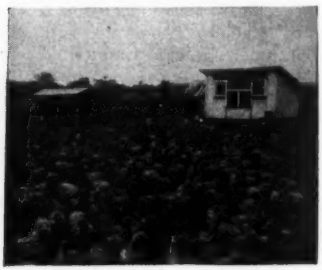
Our Milking Machine Aids the War Effort

Milking Machines Speed the Milking Time, Permit Keeping Larger Herds and Farming Increased Acreages as Well as Substituting for Hired Men. Winning Letters in May War Production Contest.

Gained 303 Pounds of Milk in First Fifteen Days of Machine Milking

On January 1, 1943, we had a pipe-line milking machine installed. We have two single units with 5 gallon steel buckets.

The cows didn't kick when we changed over, and they were not long in getting used to the milker, either. In the first fifteen days of January we gained 303 pounds of milk over the last fifteen days of December when we milked the same cows by hand. We were milking 14 head.



A milking machine produced these pullets.

The milker is kept on a cow about six minutes. You can feel the milk going through the tube. It takes no longer to milk a cow in high production than one in low production. Some cows milk clean with the milker at once, while others have to be stripped. One has to learn his cows.

Before we bought the milker it took my husband, my son and myself an hour to milk, and we had to do all the other chores afterward. Now my son operates the milker while we do the other chores, all in one hour.

The milker is washed in the milk house and is very easy to keep clean. We do not know how much it costs to operate as we use electricity instead of a hired hand for many other jobs on the farm, too.

By purchasing the milker we were able to add another cow and four brood sows and we bought some more pigs. And as for me, I used my extra time by starting January 1st with 800 chicks. The pullets have now started to lay.

MRS. MAUDE BOTKIN,
Route 1, East Liberty, O.

Machine Relieves Manpower Shortage

My husband likes dairy farming and usually has about twenty head of milking Guernseys besides raising a few heifers each year. He does all the work on a 160 acre farm plus some rented acreage without hired help and operates or supervises custom work with a pick-up baler, a grain combine, a threshing machine and a corn picker. He really appreciates his milking machine.

He does all the dairy work and milking without help. He has a three unit machine, and in less than an hour and a half has the milking all done.

When we had a full time hired man we paid from $30 to $60 per month plus board, room and laundry. Our yearly cost was:

Wages (average $45 per month)	$720
Food, electricity, laundry, etc. @ $1.25 per day	460
Total, extra for hired hand	$1,180

Our investment in machinery to get along without a hired man was about $5,000 and included the milking machine, combine, baler, corn picker, etc. Interest on that investment at 6 per cent is $300 per year. Profit on custom work pays for gasoline used and upkeep.

We estimate the electricity used to operate the milking machine at $1.25 per month or $15 per year.

Cost of hired hand		$1,180
Interest on machinery investment	$300	
Electricity	15	315
Gain		$865

By using a milking machine my husband is able to produce about six or seven cans of milk a day, and without hired help, do his own farm work and help the neighbors harvest their crops.

MRS. ISABELLE E. JAMES,
RFD, Genoa, Ohio.

First Prize—$25 War Bond

MRS. MAUDE BOTKIN, Route 1, East Liberty, Ohio

Second Prize—$5 in War Stamps

MRS. ISABELLE E. JAMES, R.F.D., Genoa, Ohio

Winners of $3 in War Stamps

E. E. MAHONEY, R.D. 3, West Alexander, Pa.

HARLEY TAYLOR, R. No. 2, Box 105, Canby, Oregon

MYN E. STOCKING, R.D. No. 1, Walden, N. Y.

MRS. JESSIE PEARL NAILL, Flintstone, Md.

Helps Sixty Year Old "Youngster" Produce Milk. Clean Milk First Time in Ten Years

In the spring of 1942 I purchased a double unit portable milker. Before that, hand milking took almost 6½ hours per day. The machine milking has reduced the time to two hours per day.

My average milking time per cow is less than four minutes. I only stripped after the machine for one week. No stripping was necessary from then on and it does a perfect job of milking.

Before using the milker the bacteria count was as high as 250,000, and I had "clean" milk only once in ten years. Since using the milker, the count has never been higher than 12,000 and I always have "clean" milk, of which I am proud. I can make no claims for increased production per cow but the quality of milk has been greatly improved.

I am sixty years young and the

time the machine saves me enables me to produce more to help the war effort. The current has never been off my line since I purchased the milker. I think that electricity is the farmer's answer to many hard farm problems.

E. E. MAHONEY,
R. D. 3, West Alexander, Pa.

Heifers Like Machine Milking

A boon certainly came to our Jersey farm two years ago when the salesman offered to place a two unit milking machine in our twenty-one cow barn for us to try out. After a good trial we bought the machine and certainly are happy with it now.

Our milk hauler picked up the milk before seven o'clock so we had to be up about four o'clock in order to hand-milk and be ready. But now with the milker we get up about five o'clock and have completed milking by six. Before using the milker Dad ached so much in his wrists that we debated about selling part of the herd. Now in less than half the time, I can milk four more cows than we had at that time by myself.

Many folks think it would be difficult to break heifers with the milker, but I find they break much quicker and easier than by hand for the machine movement never pinches or squeezes their teats. It pulls smoothly and steady so they give down their milk quick and never hold up.

Our electric bill has been increased about forty-five cents a month with the milker while the cost for an additional hand milker would be from $100 to $175 a month if one could be found. The milking machine has made it possible for us to continue our dairy program and have extra time to care for other farm duties.

HARLEY TAYLOR,
R 2, Box 105,
Canby, Oregon.

24 Cows Milked by Machine: Only 8 by Hand

Our electric milking machine has played an important part in keeping our milk production up this spring when we lacked adequate farm help to work in the dairy and to assist with crop planting. Many other farmers were selling their herds when they lost their hired man, but we made the "wired hand" take his place. When electricity does the milking one man can take care of 24 cows, producing 160 quarts at a milking, in about one and a half hours. In the last three months our herd has produced 49,831 pounds of milk. If the milking had to be done by hand, eight cows would be all we could take care of at the present time. The cost of operating the machine is small — about twenty cents a day, and the labor saved in the early morning and late evening maintains a tired man's morale after a hard day's work in the field. The time saved in milking is used in the production of other food to meet our Country's need.

MYN E. STOCKING,
R. D. No. 1,
Walden, N. Y.

Ripe Tomato Colors

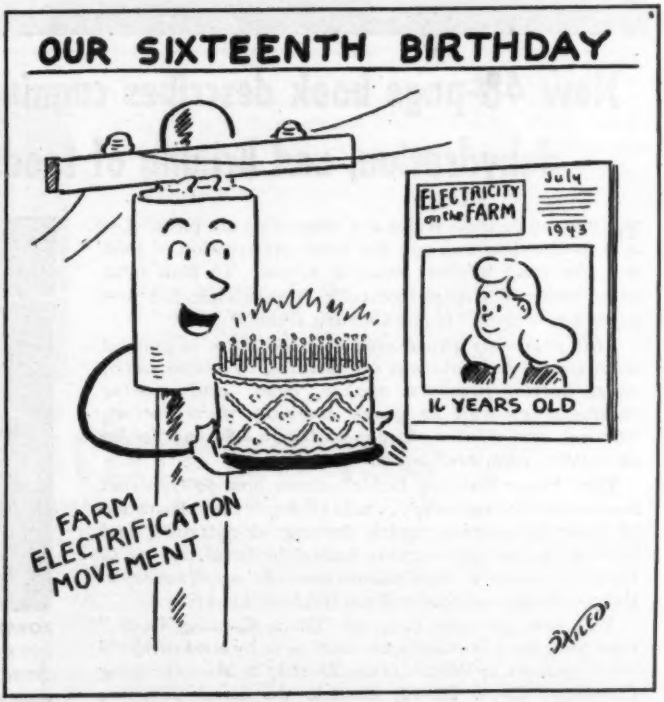
A Pennsylvania grower, concerned over inexperienced pickers, gave each a finger band of the color of the tomatoes he wanted picked. One concern plans to manufacture colored plastic rings for the purpose. It might apply to berries and other fruits as well as tomatoes.—USDA.

Linseed Oil for Cooking

Linseed oil is now being hydrogenated for use as shortening. The need for cooking oils and fats has become so great that what we formerly used as paint oil is now being refined and shipped to our allies as food.—USDA.

"Inflation for the farmer is like a 'cheap drunk.' The morning-after headache is terrible."—*Prairie Farmer.*

Salt water may be made fresh by passing it through certain new plastics.



"Congratulations 'Tricy.' We've grown up together—almost like being twins."

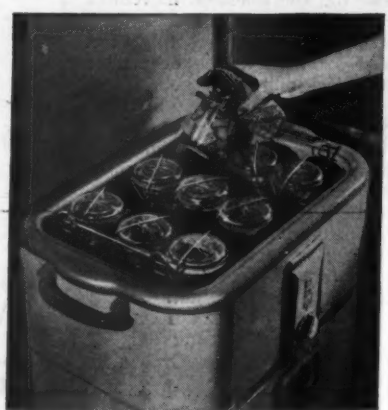
New 48-page book describes canning, quick freezing, dehydration, and brining of foods in the home.

Now—while fresh fruits and vegetables are plentiful—is the time to begin the home preservation of food *for the long winter months ahead.* To help farm wives conserve surplus foodstuffs, Westinghouse has prepared a new book, "Home Canning Guide."

This profusely illustrated 48-page book is packed with useful information on canning by water bath, open kettle, pressure cooker, oven, and roaster methods—as well as quick freezing, dehydration, brining, and winter storage of fruits and vegetables in cellars, pits, and boxes!

The "Home Canning Guide" shows how to construct home-made drying racks . . . tells all about the preparation of foods for canning, quick freezing, dehydration, and brining . . . and gives many helpful hints on the use of *thermostatically controlled electric appliances* in the preservation of foodstuffs in the farm kitchen.

You can get your copy of "Home Canning Guide" from your local Westinghouse dealer—or by *enclosing 10¢ with coupon* to Westinghouse Electric & Manufacturing Company, Dept. EF-73, Electric Appliance Division, Mansfield, Ohio.



ROASTER: More and more farm women are using the electric roaster for canning because of its convenience, coolness, and economy. Its construction makes it easy to clean.

TIMETABLE FOR PROCESSING FRUIT AND TOMATOES

For all altitudes above 1000 feet, the time should be increased 20% for each additional 1000 feet in the Hot Water Bath Method. Example: If altitude is 4000 feet above sea level, process 60% longer than time shown in table.

STYLE OF PACK	HOT WATER BATH IN MINUTES (PINTS & QUARTS)	OVEN 250° IN MINUTES (PINTS & QUARTS)
APPLES—Wash, pare, core, drop in slightly salted water. Remove from water. Boil, pack in hot juice or syrup	15 minutes	30 minutes
Applesauce, pack hot	5 minutes	15 minutes
APRICOTS—Wash, halve, and pit. Precook and pack hot	15 minutes	30 minutes
Pack raw, cover with syrup	25 minutes	60 minutes
BERRIES—Wash, stem. Precook and pack hot	5 minutes	15 minutes
Pack raw, cover with hot syrup	20 minutes	50 minutes
CHERRIES—Wash, stem, pit. Precook and pack hot	5 minutes	15 minutes
Pack raw, cover with hot syrup	25 minutes	60 minutes
PEACHES—Dip in boiling water, then cold. Peel, remove pit. Precook and pack hot	15 minutes	30 minutes
Pack raw, cover with hot syrup	30 minutes	60 minutes
PEARS—Select pears not overripe. Pare, halve, dip in slightly salted water. Remove from water. Precook and pack hot	20 minutes	40 minutes
Pack raw, cover with hot syrup	35 minutes	65 minutes
TOMATOES—Dip in boiling water, then cold. Peel. Precook and pack hot.	5 minutes	15 minutes
Pack raw. Cover with water or tomato juice	45 minutes	70 minutes
TOMATO JUICE—Irregular or undersized tomatoes may be used. Cook until soft. Put through sieve. Pack hot	5 minutes	15 minutes

TIMETABLE: Here's one of the Canning Timetables shown in the new Westinghouse "Home Canning Guide." Other tables in this useful book give time and temperature data for dehydrating fruits and vegetables. These timetables *eliminate all guesswork* in the preservation of foods in the home.

OVEN DRYING: An ideal method for home dehydration. Preserves nutrition values, flavor, and cooking qualities of many foods. A thermostatically controlled oven is best for this process.

Westinghouse

ELECTRICAL PARTNER OF AGRICULTURE

GET THIS USEFUL BOOK!

Visit your local Westinghouse dealer for your copy of "Home Canning Guide", today. If he is out of copies, use the coupon. *This helpful 48-page book costs only 10¢!*

Westinghouse Electric & Manufacturing Co. (Dept. EF-73)
Electric Appliance Division, Mansfield, Ohio.

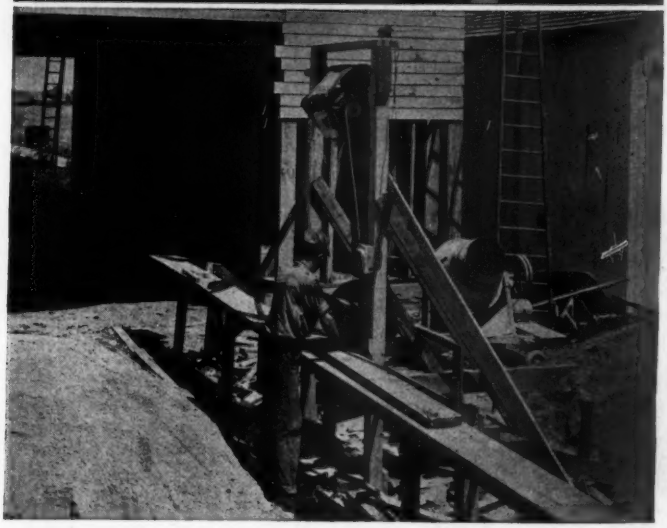
Please send me *now* Westinghouse book—"Home Canning Guide." I am enclosing 10¢ to defray mailing and handling costs.

Name .....

Address .....

Power Saws Help Farmers with Wartime Building

By GEO. R. HARRISON



Upper: An electrically operated bench saw saved a lot of time for Challen Remster and his son, John, when they had a lot of portable farrowing houses to build to increase pork production. The picture shows John at the saw while his father is working on one of the portables. The houses are built in the main driveway of the barn.

Note that the half horsepower capacitor motor has been attached to the saw on a rocker arm so the weight of the motor keeps the belt tight. The base of the motor is almost vertical, but the end bells of the motor housing have been turned a quarter turn so as not to interfere with the oiling.

Lower: When Bud Leep, owner of Pleasant View Stock Farm, Lowell, Indiana, made ready to build a new farm granary and elevator, he set up first the power saw, electrically driven, seen in the picture, with Frank Viers, one of the farmhands, working with it. The saw saves much time and labor, says Mr. Leep, who owns one of the finest livestock farms in Lake County, Indiana. He raises thoroughbred Belgians and purebred Brown Swiss cattle.

Conserve Radio Batteries

By BEN BROWN
Ames, Iowa

Among the many scarcities of wartime are radio batteries, still in use on many farms. Yet, batteries are one thing no farmer should be without if his radio depends on them for operation, because the government looks upon home radios as essential in distributing vital information to the people in the shortest time.

Two common errors in battery operation cost hours of wasted battery life. These are long, continuous radio operation, and placing the batteries near heat.

R. D. Ryder, professor of electrical engineering at Iowa State College, says that batteries, like horses, need rest to work their best. Four hours of continuous operation take a great deal more out of a battery than four one-hour periods distributed over several hours' time. During its rest period, a battery gathers strength to keep on working. Anyone who allows his radio to run throughout the day, coming in to listen to it occasionally and not listening the rest of the time, shortens the life of his batteries.

Heat is silent in its destruction and sometimes may go unnoticed by the owner. If a radio is wrongly placed on a table near a radiator, for instance, the heat will damage the batteries severely.

Damage from heat results because the battery depends for its power on chemical reaction in its ingredients. Heat accelerates this action, eating away the zinc walls of the battery and using up its strength.

Other precautions are making sure the connections are clean and keeping the radio in top-notch repair to avoid short circuits. If the radio is in good condition, it is not necessary to disconnect the battery when it is not in use. It also makes no difference to the battery whether the radio is blaring or whispering. The tubes use an almost equal amount of energy in either case.

In Napoleon's time it took one man in industry to maintain two soldiers in the field. Today it takes 18 men to keep one soldier going.

Electrical Housekeeping

Edited by **GAIL MEREDITH**

Important Points in Canning

LITTLE things count tremendously in canning. Getting the jars and covers ready for use is important. Look over your supply carefully, and discard any jars that have chipped or cracked rims. If the edge of a cover is dented beyond smoothing out, or if a cover rocks around on the top of the jar, there is danger it will not make a perfect seal.

Preparing the Jars

When you are ready to begin canning, wash covers and jars thoroughly in a good suds and rinse them clear of soap. Shortly before you are ready to fill the jars, put them and a little water into a flat bottomed kettle with a rack or folded cloth in the bottom, a kettle with a tight fitting cover, and bring the water to a boil on High. Then turn the heat down, and keep the jars scalding hot until you are ready for them. Prolonged, unnecessary boiling will just waste fuel.

Selecting the food is a big factor, too. Fruits and vegetables should be freshly gathered, in small quantities you can handle quickly. *Two hours from garden to can* is a good rule to follow. Grade fruits and vegetables according to size and maturity for the best results.

Wash food thoroughly, get every bit of dirt off. The bacteria that are hardest to kill may be clinging to the food in the soil. The whole procedure demands scrupulous cleanliness of hands, utensils, and the work surfaces as well as the food itself. Because speed is so important, it is a good idea to plan to can only amounts you can handle easily in a day. Don't push yourself to weariness and carelessness. Ten or twelve quarts a day is a good record.

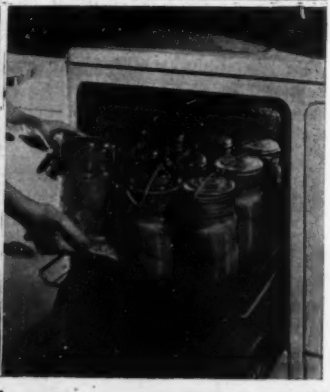
Fruits do not need blanching, but vegetables do. You can blanch with steam or you can blanch with not more than one cup of boiling water to two quarts of vegetables. If you dunk them in quarts and quarts of water, you'll soak out too many of the vitamins and minerals you intended to feed your family next winter.

Your pressure cooker is ideal for steaming. If you do not want to use it for the blanching, any large container that can be fitted with a wire basket of some kind to hold the food will do. It should have a rack to keep the basket out of the water, and a tight fitting cover to keep the steam in.

Have Hot Water Ready

Have the water heating while you are getting the vegetables ready, so it will be on the boil when they are ready to go in. Contniue the steaming until the pieces of food are heated through, stirring them about in the basket occasionally.

After it is blanched, pack food into jars as fast as you can. In fact it is hurry, hurry, hurry all along the line from the time the food is picked until it is ready to process. If you blanched your vegetables in water, use that water to fill the jars. Pack the food in evenly and closely. Leave half an inch of head room at the top of the jar for all foods except the starchy ones like corn, peas, and lima beans. These need an inch to expand in. Be careful not to crowd any large pieces of food into the neck of the jar. Add liquid—boiling water or syrup until it covers the solid food. If



Right: Use the pressure cooker for meat and poultry and for all vegetables but tomatoes.

Lower left: Four jars of cold packed peaches go into the boiling water for processing.

Lower right: Leave space between jars for circulation of air when you process fruit or tomatoes in the oven.

Smart Summer Patterns

Pattern 4423 . . . The ever-smart two piecer in a comfortable bodice-top version. Sizes 34 to 46. Size 36 requires, 3½ yards 36 inch fabric.

Pattern 4373 . . . A neat jumper and blouse for your daughter; add ruffles for a cute pinafore. Sizes 2 to 10. Size 6 jumper, 1⅛ yards 35 inch fabric; blouse, ⅞ yards; pinafore, 1¾ yards.

Pattern 4407 . . . Like daughter—like mother in this easy-to-make pinafore. Sizes 14 to 20, 32 to 42. Size 16 requires, 3⅜ yards 35 inch fabric.

Price of each pattern 16c (in coins). Send orders to ELECTRICITY ON THE FARM, Pattern Dept., 243 W. 17th Street, New York, N. Y. Allow plenty of time. Mail is slow these days.

down the side of the jar and press the food back, you will make room for the air to get out and for more liquid to get in.

Use Care In Sealing the Jars

When you finish the packing, dip a rubber ring in hot water and lay it in place. Wipe it and the rim of the jar clean of any particles of food, then adjust the cover. Little dabs of food on the edge of the jar may spoil the seal. After the jar is ready, put it back in the kettle to stay hot until you have enough jars ready for processing.

If you are using a large kettle for the boiling water bath, a kettle that extends beyond the chrome ring around the unit, be careful of prolonged use of High heat. This may result in the discoloration or crazing of the surface of your electric range. You can protect the enamel by bringing the water to a boil in a tea kettle or covered pan that fits the unit then pouring it into your large canner or pressure cooker.

Keep the current on High only long enough to bring the water to a boil or to bring the pressure to the required point, then turn it down. If you have to readjust it from time to time—and you may, because the size and type of the cooker will determine the amount of heat you need, keep it as low as possible.

Since variety in your meals next winter is likely to depend a good deal on the success of your canning, it might be wise to brush up on your method and to think back over the conditions that govern the handling of different kinds of food.

For canning purposes, foods are divided into two groups according to the amount of acid they contain. Fruits, tomatoes, pickled beets, and rhubarb are acid; all other vegetables, meat and poultry are non-acid.

The yeasts and molds that cause spoilage are easily destroyed by heat; so are bacteria when they are actively growing. The temperature of boiling water will do it. But some of these bacteria have a spore form in their life cycle, and the destruction of these spores takes a good deal of heat. You could kill them by boiling the vegetable that harbors them many hours, but if you did, you would take away much of the original flavor and texture. A higher temperature for a shorter time will destroy the bacteria and leave the food in better condition.

The amount of acid in the food makes a great difference in the rate at which these difficult bacteria are destroyed. In acid foods all forms of bacteria are easily and quickly killed at the temperature of boiling water. That is why it is successful to can these acid foods in a boiling water bath or in the oven of an electric range, or in an electric roaster,

providing these last have an accurate thermostatic heat control.

This is not the case with non-acid foods. To protect them and make food safe from spoilage, you need the higher temperature you can get only in the steam pressure cooker.

Whatever the food, and whichever the method, process the cans at the temperature and for the time indicated in the table you follow. Since water reaches the boiling point at different temperatures in different altitudes, these tables will not be the same for different parts of the country. You will do well to turn to your agricultural college, or the Home Service Women of your local electric company for directions you can follow exactly.

Fish—Catching to Cooking

There is in the court yard dining room at Lowell Inn, up in Stillwater, Minnesota, a splashing fountain and a deep little pool in which lurk trout that you can order for your dinner.

Those trout waste no time from pool to pan. Fish shouldn't. The shorter the time from catching to cooking, the better the eating, unless, of course, the fish has been frozen. Then the time doesn't count. Freezing preserves the original flavor and texture to a great extent.

But for most of the fish that are nudging meat off our tables these days of red stamps, freshness is the prime virtue. Next to freshness comes skillful cooking in making fish a success at dinner. And nearly everybody likes them fried.

If the fish cannot be cooked immediately, clean and wash them thoroughly, sprinkle them with salt inside and out, wrap them in waxed paper and put them on top of the meat drawer directly below the chilling unit of your refrigerator.

Just before meal time put plenty, yes, lots of fat in a thick, heavy, frying pan and heat it quickly with the switch of your electric range on High. Roll the fish in well seasoned flour or corn meal, or even fine cracker crumbs. Corn meal makes the crunchiest brown crust. When the fat is piping hot, but not smoking, lay in the fish. Cover the pan while they cook on one side, but after you turn them, leave the cover off, so as not to steam and soften the brown finish.

By the time one side is thoroughly brown, you should be able to turn the current to the second or third heat and still keep the fat hot enough to brown the other side. Let them sizzle until you can pierce them easily with a fork.

Serve quickly on a hot platter. There is more than eye appeal in a fragrant, appetizing row of golden brown fish. Ask the man who caught them.

Night Shift On the Ironer

I have a friend whose gangling six-foot son often runs the sheets, pillow cases and towels through the ironer while he visits with her as she finishes the evening's work in the kitchen.

Don't ask me how she taught him to iron. I don't think she ever did. I think the men folks were just naturally interested in the ironer as a piece of machinery and kept running it to see how it worked. Of course they couldn't do that without ironing.

Dad Irons the Shirts

Once, when Ella had been gone for a week, I met Ned, her husband, at a party. He kept me cornered for half an hour while he told me in great detail exactly how he'd ironed five shirts for himself and Dan. "And they were just as good as Ella could do," he said. "Almost."

I said I was sure Ella would be glad to come back to find a neat pile of ironed clothes ready to put away, but Ned just squirmed a little at that, saw some one across the room he had to talk to, and hurried off muttering that he and Dan had been too busy to do more than the shirts.

That was probably just as well, for I suspect that no matter how clever a man may be at running through an exhibition piece on the ironer, he will never remember to cover the roll with several thicknesses of outing flannel or part of a table pad when he is going to run through a pile of embroidered linens. In fact, it isn't likely that you could trust him to remember to iron the linen face down so the embroidery would sink into the soft padding on the roll.

Nor could you expect that he would think to turn buttons, and

snaps, and hooks and eyes toward the inner roll to avoid scratching the shoe as well as to avoid bending the fasteners flat or breaking them off.

Ella is a good hand with her ironer, and she takes good care of it. When she finishes her ironing, she lets the shoe cool, then wipes it off carefully with a damp cloth, then rubs it dry. The shoe cleans easily because she does not have starch sticking to it any more since some one taught her to add a pinch of salt to the starch when she makes it.

Now and then she takes the padding off the roll, fluffs it up, and turns it end for end when she puts it back. She has had a new padding on the roll at least once since she has had the ironer. She keeps two muslin covers for the roll and sends the extra one through the wash regularly so there is always a clean one.

Save what you have. This was bad business years ago when this illustration was first published in ELECTRICITY ON THE FARM. It is worse today when irons, repairs, linens and house building materials are hard to get. Pull the plug before you answer the phone or the door bell. It's the safest way.

Keeping the Coffee Maker Working

It seems most unlikely that anyone is serving coffee every meal these days, but that is no reason for putting the coffee maker up on a high shelf. The lower section can serve as pan and hot plate for heating soup, making hot cocoa, or even for steaming

vegetables. One friend of mine plugs it into a convenience outlet near her bedside table and uses it as the baby's bottle warmer in the middle of the night.

Handle Bowls Carefully

If your coffee maker is glass, treat the bowls gently. When the bowl is hot, be careful not to pour in cold water, and if it is cold, be equally careful not to shock it with very, very hot water. These bowls are made of heat resistant glass, but harsh, sudden changes are a danger.

Be sure that the outside of the lower bowl is wiped dry before you put it on the stove, and watch that it never boils dry while the coffee is brewing.

Keep the stove out of the water. Wash off the outside with a cloth and wipe it dry.

Coffee Making Suggestions

Just before coffee rationing went into effect last November, the office of War Information broadcast a few ways to make the coffee we have go farther and taste better. This is what they suggest:

1. Use fresh coffee. If you have several ration books in your family, don't lay in all the coffee they call for at once. Better buy only one pound at a time. Good coffee is fresh coffee.

2. Keep your coffee in a tightly covered container. Exposure to the air will rob it of its flavor and quality.

3. Keep it in the refrigerator. It deteriorates less rapidly when cool. But home storage of any kind is inadequate for storage of large quantities of coffee.

4. Keep your coffee pot immaculately clean. Scrub and scour. Rancid oils from old coffee could spoil your new brew.

5. Use accurate measurements. A spoonful should be level, not heaping. Don't add a spoonful "for the pot."

Summer Pattern Book

The complete wartime summer wardrobe pattern book is still available. Contains junior miss, mother and daughter and maternity styles. Send 10c in coin to ELECTRICITY ON THE FARM, Pattern Dept., 243 W. 17th St., New York City.

Safety Hint

Awkward lifts mean lame backs or worse. When lifting from the ground keep the back as vertical as possible, use the leg and arm muscles, apply force steadily, don't jerk. Professional weight lifters agree that "know how" is more important than brute strength. Use your head to save your back.—*W. C. Krueger.*

For the fiscal year beginning July 1, 1943, war spending will rise to the annual rate of $100,000,000,000 (billion).—OWI.

In three and one-half years *Atlantic Clippers* have made nearly 1,200 transatlantic crossings, carrying 45,000 passengers and 2,500,000 pounds of cargo.

Summer Ventilation For Poultry Houses

By **BRUCE FEARN**
Philadelphia Electric Co.,
Coatsville, Pa.

MR. E. S. CHANDLER of near Bristol, Bucks County, is a Pennsylvania dirt farmer. In recent years he has concentrated on poultry and apples. During a conversation last year it was remarked that if he kept on using electricity as labor he would soon have nothing to do but sit on a silk pillow. That is a figurative expression only, for Ed. Chandler is not a man to remain idle. Many years of work and thrift are not readily laid aside. But Ed Chandler does an amazing amount of work with electricity. As an illustration he prepares and mixes his chicken feed with electricity, irrigates his orchard and grinds grain with a portable 5 HP motor, cools his apple storage with a 24" ventilating fan, broods his chicks with electric brooders, and lights and ventilates his chicken pens with electric fans.

Of all these applications the most outstanding one is the ventilation of the chicken pens. In fact this job of ventilation would be outstanding anywhere. It is especially so when it is remembered that the job is used in a remodeled barn. It proves one thing particularly—that good fundamentals of ventilation will work anywhere.

2,000 Hens in a Barn

The remodeled barn houses 2,000 hens. During the hot sultry summer days the accumulated heat load in the building would become pretty large. The result was the loss of mature producing stock through heat prostration and in addition the egg production of the whole flock was lowered. This loss of hens on one occasion amounted to 72 hens in one day. That is out of the ordinary to be sure but it is a fact nevertheless. The situation got so critical that something had to be done and Ed. Chandler did the right thing. He got in touch with the electric company's rural representative. A survey of the job showed that heat was a problem only when the air became still and the heat was allowed to accumulate in the building. Therefore it was decided to move the air electrically with enough velocity to dissipate the heat as fast as it was created. To do this a 30-in. low speed belt driven exhaust fan was installed in one pen for trial. The results were immediate and so satisfactory that Mr. Chandler installed two more 30-in. fans and three 24-in. fans of the same type to provide the other pens with as much air motion.

In two years operation of this installation there have never been more than 2 or 3 hens lost in any day due to heat prostration, and egg production has been maintained all during the hot weather. Mr. Chandler says it is often more comfortable in his chicken pens than it is outside and the investment in fans and electricity is covered with a profit to spare on the increased egg production alone. Most important, these fans in keeping up egg production are helping patriotic Ed. Chandler do his part in winning the war.

In this remodeled barn there are two poultry pens on each floor. Each pen has its own ventilating fan of a size to give about one complete air change per minute. One pen on each floor is 50' x 34' x 6½' and the other is 50' x 18' x 6½'. 36" fans with a capacity of 10,000 cu. ft. per min. are used in the larger one and 24" fans of 5,000 cu. ft. per min. in the smaller ones. When the fans are in operation, the windows on the fan sides of the pens are kept closed.

Canning Fruit

. . . . . (Here from page 8)

back so they will vent, and then places them on the rack in the sterilizer. About one and a half gallons of water are then put into the bottom of the unit, the lid placed on top, and the electricity turned on. After the water comes to a boil, in about 15 minutes, the fruit is allowed to steam 30 minutes before turning off the switch. The jars are left in the sterilizer for about 15 minutes. They are then taken out, the lids turned down tight, and then, after being allowed to cool, are stored away for future use.

About thirty-six quart jars can be handled at one time in this sterilizer which is the two milk can size. Total power consumption for the cooking cycle is 4 KWH, which costs 4 cents at the Kneppel's low terminal block of 1 cent per KWH.

Mrs. Kneppel says that this is the most practical, economical and convenient method of canning fruit that she has ever tried.

By JEROME J. HENRY

Quick Thinking Girl

Somebody should nominate Nina Klowden, NBC actress, for one of those all-important jobs that requires quick thinking.

Way back in 1927, when she was all of five, little Nina's pony

Nina Klowden is the fourth in a series of NBC "Pin-Up" girls chosen by men in the Army.

ran away from her. Instead of getting panicky, the youngster in true wild west fashion, grabbed an overhanging tree limb and hung on until help arrived.

Two years later when she was playing the part of a gossipy old lady in a school play, one of the youthful actors forgot his lines completely, and the play was about to fall into a cocked hat. Quick-thinking Nina, all dressed up in her mother's clothes, saved the day, and the play, by making up new lines.

All this should have been some indication that the gal had talent. She proved it by landing a role in an Arch Oboler play at the age of 13, and winning an award, given annually to the freshman with the highest scholastic average, at Northwestern University.

Currently Nina is featured in the NBC serial "Ma Perkins" as Gladys Pendleton, daughter of Roshville Center's wealthy banker, a role that requires figuring out all kinds of scrapes.

Recently Nina had the tables turned on her by quick-thinking members of the Army Air Forces stationed at Truax field at Madison, Wisconsin. The boys unanimously named Nina as their favorite "Liberty Lass."

Cantor Needs an Audience

When Eddie Cantor first came into radio he promptly confessed that he was lost without a visible audience. "Maybe it's just the ham in me," he explained, "but I want to see an audience and hear its applause."

Audiences are quite common for many radio shows nowadays but when Eddie first started toying with radio, a bitter controversy was raging about whether anyone belonged in the studio besides the actors and engineers.

Many argued that a comedian who played for the studio audience was neglecting what was affectionately known as "the great unseen audience." Comedians, particularly the old-timers who were venturing into the new art, demanded and got people to look at while they went on the air.

Cantor was one of the first to point out that only a live audience could help a comedian time his laughs. And for that aid Eddie aways repays those who come to watch him work. He usually rehearses before a specially invited group a day or so before the broadcast date.

Before the program goes on the air, Eddie brings his gang out to put the audience into the proper mood, and when the air show is all over, he invites the studio audience to remain for some more laughs. Eddie still sticks to that system. But these days that studio audience is restricted to service men only.

Garry Found Out

Garry Moore, star of "The Show Without a Name," reports that New York shine boys are all out for defense. Waiting to get his shoes polished on Broadway the other day, Garry heard a 12-year-old kid refuse to accept a soldier's payment for his shine.

"How can you afford that?" Garry asked the boy as he put his shoe on the rack.

"You'll find out," the boy answered, and after shining Garry's shoes, he calmly demanded 20 cents. Garry paid.

Fifth Year on the Air

"The Aldrich Family" is celebrating its fifth anniversary on the air. In these five years Henry Aldrich has become America's favorite adolescent, awaited each Thursday by millions of American families.

Although "The Aldrich Family" has made radio history right from the start, none of the original cast members remain.

When the fifth anniversary celebration loomed up, the four girls

This is Leona, who substitutes for a Maxwell in these days of gas and tire rationing. And that is Jack Benny, her devoted master, who hopes to get Leona in shape for the trotting season.

who have played "Mary" since the comedy started on the air got together with the author, Clifford

Four girls who have played Henry's sister "Mary" in the Aldrich Family.

Goldsmith, to blow out the candles on the anniversary cake. Pretty Ann Lincoln is now playing the ingenue lead with the "Life With Father" play on the stage; Mary Shipp is Henry's girl friend "Kathleen" in almost every Aldrich episode; Charita Bauer has played leading and featured roles in two Broadway plays, and Mary Rolfe is the present sister "Mary" who bears up under Henry's enthusiasm very well.

"I fully intended to plant a Victory Garden. I bought some seeds, put them in my pocket and forgot all about them."

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Dept. 1126, Ashland, Ohio
Send your free care and maintenance book and name of nearest Myers dealer.

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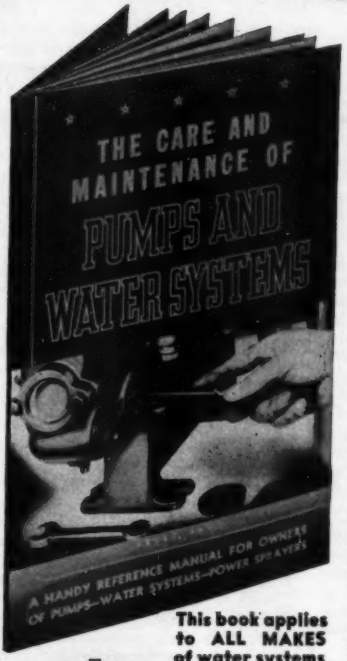
THE CARE AND MAINTENANCE OF
PUMPS AND WATER SYSTEMS
A HANDY REFERENCE MANUAL FOR OWNERS OF PUMPS—WATER SYSTEMS—POWER SPRAYERS

This book applies to ALL MAKES of water systems

to prevent and remedy water system troubles

If you own a water system, any type or make, you need this practical book containing hundreds of pointers on care and maintenance. Tells how to prevent costly breakdowns—how to diagnose ordinary troubles — how to make adjustments and minor repairs yourself. But, when it's a major repair job that requires an experienced pump man, or when you need repair or replacement parts, see your competent Myers dealer.

If you own a Myers Water System, chances are it has pumping capacity to supply additional pipe lines to your livestock, poultry, or your victory garden. Talk it over with your Myers dealer. Ask him for free book, or mail the coupon.

22WS3

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New Publications

(Publications are obtainable from the addresses given in the description. Some states make small charges for bulletins sent outside the state.)

• NINE G. E. BOOKLETS. The Consumers Institute, General Electric Co., Bridgeport, Conn., has just issued nine helpful booklets of from 4 to 24 pages on the following subjects:

How to Store Perishable Foods
How to Take Care of Work Clothes
Quick Breads (With 30 recipes)
Make the Most of the Meat You Buy
Care of Your Electrical Appliances
Bread Baking Made Easy
Fuel Conservation Made Easy
Housecleaning Made Easy
How to Get the Most Out of the Food You Buy

The booklets are available from your GE Dealer or from the Institute.

• WARTIME CARE OF FARM PUMPS AND WATER SYSTEMS. 16 pp., illus. Electric Water Systems Council, 420 Lexington Ave., New York City. Or it may be available from your pump dealer or County Agent. Instructions on oiling, belts, priming, air volume control, stuffing boxes, finding and correcting troubles.

• SAFEGUARDING THE FARM AGAINST FIRE. 61 pp., illus. Free. National Board of Fire Underwriters, 85 John St., New York, or 222 W. Adams St., Chicago. An excellent booklet divided into eleven chapters on causes of farm fires, chimneys, stovepipes, heaters, lightning and lightning rods, electrical installations, oils, spontaneous ignition, safety practices in the home, safe buildings, extinguishing rural fires and financial protection against fire.

• COOKING, CANNING AND PREPARATION OF FOODS. 12 pp., illus. Rural Elec. Series. Bul. 2, Available from Westinghouse dealers or Westinghouse Rural Electrification Dept., Pittsburgh, Pa. Pointers, pictures and tables on storage in the refrigerator, freezer locker, and on canning.

• HOW TO DEHYDRATE FOOD AT HOME. A 16 pp. folder in color showing dehydrated products, giving complete plans and bill of material for a home dehydrator with capacity of 10 to 25 pounds of fresh products and a preparation and drying chart for fruits and vegetables. Available from the Extension Service of any of the following states: Tennessee, Kentucky, Virginia, North Carolina, Georgia, Florida, Alabama, Mississippi, and Arkansas.

• HOME CANNING GUIDE. 48 pp., illus. Price 10c. Home Economics Institute, Westinghouse Elec. Mfg. Co., Mansfield, O. An excellently prepared and illustrated bulletin on foods and health with chapters on the four main canning methods, dehydration, freezing, brining and winter storage. Detailed instructions and tables.

• THE FREEZING PRESERVATION OF FOODS. By Tressler and Evers. 790 pp., 161 illus. Cloth binding. Price $8 ($8.25 foreign). The Avi Publishing Co., Inc., New York. An authoritative book which completely covers the subject of frozen foods. Starting with the principles of refrigeration, it describes in detail the plant and mechanical equipment for freezing, with chapters on locker plants and on farm freezers. Various types of homemade and commercial farm freezers are described and their merits explained. Also the different methods used for quick freezing, preparation and freezing of fruits, fruit juices, vegetables, meats, poultry, fish, shellfish, and dairy products, packaging, storing, transportation and marketing, nutritive values, cooking and serving. Contains U.S. Standards for frozen vegetables, quality control, results of research and a most complete bibliography on freezing and allied subjects. Newest and most complete and specific book in this field.

"Keep 'em Frying"
If you are using a Monarch Range — write for free booklet entitled "How to Care for your Monarch Range"—mentioning the kind of fuel you use.
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1243 Lake St. Beaver Dam, Wis.
MONARCH RANGES
are built to last

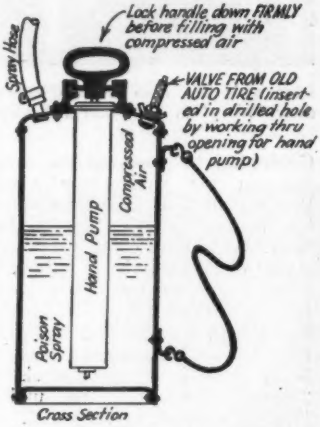
A Victory Canning Center in a Pueblo, Colorado school annex is supplied with 17 electric stoves, a work table for each stove and 24 sixteen quart pressure cookers. There are also apple peelers, cherry pitters and pea shellers. The Center is sponsored by the AWVS.

This one makes a net; this one stands and wishes. Would you like to bet which one gets the fishes? —*(From the Chinese.)*

A "Lazy Man's" Hand Sprayer

By F. S. ROOT
Northampton, Mass.

Having tired of pumping up our hand sprayer, I hit upon the idea of using my motorized tire pump to do the hard work. This pump, which I also use for paint-spraying, was homemade, using a compressor taken from an old electric refrigerator. It is belt driven from a one-quarter horsepower washing machine motor, and is equipped with a one dollar pressure gauge, so that I know just how much air pressure I am using.


Lock handle down FIRMLY before filling with compressed air
Spray Hose
VALVE FROM OLD AUTO TIRE (inserted in drilled hole by working thru opening for hand pump)
Compressed Air
Hand Pump
Poison Spray
Cross Section

Boring a hole in the top of the hand-sprayer tank, I was able by working through the hole to insert a valve taken from an old auto tube and to secure it firmly in place with a lock nut on the outside of the tank.

In use, after pouring in the spray mixture, the hand pump is replaced and clamped down firmly. Air from the tire pump is admitted until the pressure guage on the pump hose shows 50 pounds pressure.

Often the entire spray mixture will be used up before the pressure in the sprayer falls low enough to require another trip to the tire pump.

Anyone who owns any kind of an air compressor and who has any use for a sprayer, should adopt this simple device. It is very comforting to the back muscles.

Questions and Answers

Colonial Bath House. The three weathered stone columns are what remain of the gentlemen's bath house at the Miles Brewton (Pringle) home in South Carolina. The home was built in 1765 and was used as British headquarters in 1780. An old stone tub is still in place.

Reversing Old Style Motor

▶**Question:** *I have an old style G.E. motor of the repulsion-induction type. The brushes are on a slotted ring that is held in place by screws. Can you tell me how to reverse it to make it run in the opposite direction.* R. E. G., Ohio

▶**Answer:** The G.E. Co. writes: "This sounds like an SCR motor which is reversed by shifting the brush ring. If there are no marks showing the running positions of the brush ring, try shifting the ring to the opposite end of the slot. If the motor reverses, shift the ring back and forth a little until the place is found where the sparking at the brushes is the least. If it does not reverse, write back and give us the type number, serial number and all the other data from the nameplate and we can help you better."

Dryer and Pulverizer for Poultry Manure

▶**Question:** *Am writing you to obtain some information if possible on drying and pulverizing equipment for chicken manure, also any specification if available on home-made equipment, where steam and power are available.* H. P., Ind.

▶**Answer:** The pulverizing is simple enough after the manure is dried and an ordinary hammer mill with a coarse screen does the job admirably.

The only place where I have positive knowledge of poultry manure being dried and ground is on the West Coast where there is much sunshine and the humidity is low enough so the manure dries in the open, just by spreading it out.

Cow manure is dried by the Borden Company in New Jersey by running it through a drum-type drier heated with an oil-burning jet. The drum is rotated and the temperatures inside are very high, possibly 1,000° F. Such driers are rather expensive costing perhaps $3,000.

I hesitate to make any suggestions to you relative to a drier because it involves not only a mechanical design but costs which must be low enough so you can make some profit on the undertaking. If you had some second-hand pipe you might make a drying table of steam pipe placed close enough together so the wet manure would not go through between pipes. The wet manure could be forked on to this drying table and raked down to an even depth and a blast of air sent over it with an electric blower. If you could work out a system for confining the air in a tunnel over the drying table that would help.

Baled Hay Elevator

▶**Question:** *I want to build a bale elevator and run it with an electric motor to elevate baled hay to the barn. Will you inform me where I could get plans for this purpose?* V. U., Ohio.

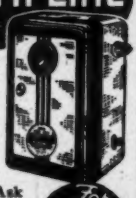
▶**Answer:** The construction of such an elevator would be very similar to some of the drag-type elevators we have described in our magazine. Plan No. B-212 from the University of California, Davis, Calif., on page 4 of our February issue for instance, is for a drag-type elevator for grain. This same general plan could be used for baled hay if you make the chute and flights wide enough to take the bales.

Water Heaters in Series

▶**Question:** *We have had a hot water tank in connection with our furnace, but now have an electric water heater. Are there any laws or rules against running the water from the furnace tank into the electric heater?* C. J. M., Ind.

▶**Answer:** There are no rules against connecting an electric water heater to the hot water side of a furnace heated water tank unless your

Get A Gardner Hi-Line Controller



Save time, get set for more milk, beef or pork production with a Gardner hi-shock hi-line controller — the best engineered electric fence unit. Thousands are in nation-wide use, many have given six years of successful service. Ask your dealer today, or write direct for free folder.

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CLEAN-EASY MILKING MACHINES

Electric Company has some local regulation covering that point. As a matter of fact, unless the tank connected with your furnace is rusted on the inside, that is a desirable way to connect electric heaters, especially in the summer time. In the summer the water in this first tank would be tempered somewhat by the outside air and would reduce power consumption. In the winter time, you would be using fuel in the furnace to heat the water and the electric heater would just supply enough heat to keep the water temperature up to that of the thermostat setting. It takes fuel, of course, to heat water and if you have a special water heating rate, there would be some question whether you would be saving anything in the winter time. Some companies do not give the special water heating rate if you have the heater connected to the furnace heated tank.

Freezer from Old Compressor

► **Question:** *I have a compressor and motor and coils from a 14 cu. ft. refrigerator. Please send information on building a cabinet for a freezer.* W. W., Ill.

► **Answer:** You can get information on this subject by writing to the Oregon State College, Department of Agricultural Engineering, Corvallis, Oregon, or to Washington State College, Pullman, Wash., or to Mr. P. T. Montfort, Texas, A. & M. College, College Station, Texas, asking for their bulletins or blueprints on making freezing cabinets.

If your motor and compressor units are in good condition, I would judge that they would do a good job on a freezing cabinet of about 8 cu. ft. capacity. That would be a box having inside dimensions 2x2 feet and 2 feet deep. I would suggest making a box with a top opening lid. If you have available cork board or granulated cork, you should use about 5 inches for insulation on sides and bottom and 3 or 4 inches in the lid. You will need a lid that fits tight and with a good gasket to prevent heat loss. Rock wool or fiber glass may be used for insulation in place of cork, or you can use dry planer shavings, if you can keep them dry in the box. You would need about 12 inches of thickness of planer shavings on sides and bottom to give you proper insulation.

CLASSIFIED ADVERTISING

ELECTRICITY WITH THE LYON LINE can increase your production. Many Lyon Electrical Supplies can be shipped reasonably soon. Repairs and certain parts for homemade brooders and dehydrators are receiving special attention. A card will bring you detailed information if you specify your requirements. LYON RURAL ELECTRIC COMPANY, Dept. EF, Greensboro, North Carolina, or San Diego, California.

Electrically operated drag elevator on a farm in Champaign County, Illinois. A 1 hp motor will do the job. Photo by Extension Service, USDA.

Service for Heavy Farm Power

► **Question:** *When are the service companies going to solve the heavy farm power problem which is now held back by heavy minimum charges? If these charges are necessary because of transformer losses it is up to them to devise a transformer disconnector, perhaps an automatic one. It is not impossible and I doubt if it is impractical. It might also be coupled in with a day load as it is done in cities.* E. G. H., Ind.

► **Answer:** This problem of heavy farm power both for stationary and field use is one which I agree with you is in need of solution. There have been some attempts and some still are being made. Two factors may help to bring about a change after the war. One will be the excess of generating capacity which may be available, and the other, is that as the general level of use of electric power increases on the farm, these bigger concentrated loads will not be so much of a drain on the power system. In other words, where we now have a connected load of say 10 kilowatts, the use of a 3 hp motor is not a great tax on the line capacity. If we could step up the load to 20 kilowatts, we might reasonably expect that a 5 or 6 hp motor could be used with no greater proportionate increases in wire and transformer sizes.

I must admit that we Americans have not been too brilliant in the development of productive uses for electricity on the farm. There is still a big field there.

Used Freezers—Paint and Credit

► **Question:** *I have been trying to buy a rebuilt freezer for use on my farm. Most of them were painted inside with aluminum paint that had a rank odor. Where can I get odorless refrigerator paint? Then the company said they could not sell on time payments as the OPA man had been in several times watching them.* E. L. H., Maine.

► **Answer:** Odorless refrigerator paints are made by the Armstrong Cork Company. They probably have a branch in Boston, or you can address them at Lancaster, Pa.

It is probable that if those small freezers were painted on the inside with aluminum paint, the odor would eventually disappear if the box was left open and perhaps an electric lamp hung down inside to help heat and dry the paint.

So far as I have been able to find out there are no OPA rulings regarding time payments. Also, there are no restrictions on the sale of freezing cabinets if those cabinets are in stock. New ones are no longer being made. Watch out for "fly-by-night" dealers who get your cash—at high prices—and leave you holding the bag on imperfect equipment.

WFA to Requisition Idle Farm Machinery

To obtain the fullest possible use of existing farm machinery the WFA will requisition idle farm machinery to make it available for purchase by farmers who put it to full use. County USDA War Boards will determine whether machinery is idle, and may request their State USDA War Board chairmen to requisition specified pieces. A County War Board will certify: (a) Whether the owner of the machinery is known; (b) that he is not a member of the armed forces; (c) that he has been notified that the machinery is needed and has refused to negotiate with a responsible purchaser. County War Boards must also certify to their State Board that the machinery is needed to meet food production goals.

Mow Hay Finisher—Plans and Power

▶ **Question:** *I have just read the article in your April copy on Mow-Cured Hay. It seems to me that this is the answer to the small farmer's problem of curing hay.*

Do you have any additional plans or specifications for these installations? If so, I would like to receive them. I would like to use a mow 20 ft. x 16 ft. x 20 ft. high.

In a recent issue you had plans for a blower made from wood. Would such a blower be suitable for this purpose? Could you send me plans for this blower?

Electric motors being as hard to get as they are, do you think tractor power could be used to operate this outfit until an electric motor could be procured?

W. A. F., Pa.

▶ **Answer:** I regret that we do not have any plans of a mow hay drier which would serve your purpose any better than those shown in our April issue. The design of these driers really requires some engineering calculations in order to have the drier and fan unit fitted to the barn in which it is to be used. There are some driers of this kind in Western Pennsylvania and I would suggest that you get in touch with the rural service man of your Power Company who, I am sure, would be glad to give you some assistance in figuring the size of ducts necessary and the size and power required for the fan. I believe he would do this even though you cannot obtain a motor for use immediately.

If you can get your tractor into a place where you can use it on the fan, it would, of course, supply the necessary power. It would probably not be as convenient or economical as the electric motor.

A copy of the description of that homemade fan from our March issue is enclosed. If you are going to build one of them I would suggest that you write to Ohio State University for their blueprints. You would probably need the 48 in. size fan which they were experimenting with.

Wire for Extra Lights in Barn

▶ **Question:** *I would like to know the proper and quickest way to try to get priority papers for electrical wire for wiring some extra lights in barn and chicken house. They claim you can get wire easier for outside buildings than living houses or homes.* R. H., O.

▶ **Answer:** If your farm has been approved by the U.S.D.A. County War Board for electric service it would only be necessary for you to go to your dealer and sign a certificate in order to purchase up to 75 pounds of wiring materials for wiring your buildings.

If you have had farm service perhaps the best thing for you to do is to try to find a dealer who has wiring materials for sale. He is permitted to sell them to you without priorities if he cares to but would have some difficulty replacing them. If you cannot find a dealer who has wiring supplies perhaps your Power Company can help you. If the dealer requires a preference rating, then you should go to your County War Board and ask for instructions on how to get the priority. The procedure varies somewhat in different localities.

Hay Hoist and Motor Drive

Question: *In your April, 1942, issue of* ELECTRICITY ON THE FARM *page 10, what is the name of the company which sells the hay hoist shown? At what speed should it run? Would it be practical to use a 1½ h.p., repulsion induction motor with an automobile transmission as the power plant? If so, could I get the proper speed by using certain size pulleys on the transmission, in either first or second gear?*

If the 1½ h.p. motor is practical can it run on 110 volts? And where can I obtain an overload relay starting switch? Can the motor be of different type from repulsion induction? A. S., Jr., Wis.

Answer: The hay hoist illustrated on page 10 of our April 1942 issue was made by the Ireland Machine & Foundry Company, Norwich, New York. This hoist has its own gear reduction and you would not need to use the car transmission in combination with it. If you use a 1½ hp. motor, I would suggest driving the hoist with a V belt of medium cross-section. You would need a V pulley on the motor but could use the flat pulley on the hoist. A step pulley on the motor would give you a choice of several different speeds. Our May 1943 issue answers several of the questions in your letter.

It is usually recommended that motors of more than ½ hp. be operated on 220 volts. If you do not have 220 volt current available, you can use 110 volts providing your wire from the transformer to the motor is large enough to carry the load. If your wire is too small, you will have a drop in voltage and a loss of power so the motor would not pull the load. You could use either a repulsion induction or a capacitor type motor. Starting switches with overload protection are made by practically all companies making electric switches. Both General Electric and Westinghouse sell them.

Underground Cable

▶ **Question:** *Will you please advise me in regard to using flexible lead covered wire to lay underground—and about its durability.*

K. O'K., Ill.

▶ **Answer:** Flexible lead covered cable known as Parkway cable is made especially for use underground. There is also a non-metallic sheath cable made for the same purpose. It may be buried directly in the soil. The common use for these cables is between street lights where the wires are carried underground.

These cables will last for many years if the lead sheath or the outer covering is not injured by traffic over it or by being dug into. Where there is danger of injury to the cable it is of course best to run it in pipe or tile. It is doubtful whether you can buy it during the war, however, without a high priority.

Ice Cream Cabinets as Home Freezers

▶ **Question:** *I am wondering if you would be able to give me general information regarding ice cream cabinets for frozen food lockers? And is it satisfactory for freezing fruits and vegetables?* E. E. Wis.

▶ **Answer:** Some people are using ice-cream cabinets for frozen food lockers at home. They do a reasonably good job, if you do not put large quantities of food into them at any one time. These cabinets are designed only to keep ice-cream from thawing after it has been frozen. They would do the same for foods. It takes much more power, however, to freeze the foods than to hold them in frozen condition. I would not advise trying to use an ice-cream cabinet where you expect to put in large quantities of fresh meat or other produce at any one time. You might improve their capacity by putting in and freezing containers of calcium chloride or common salt brine equal to one twentieth or one-tenth the capacity of the cabinet.

Pressure Cookers Available. WPB has made materials available for the manufacture of 275,000 pressure cookers this season. That is greater than the output of any previous year. Cookers will be allotted by the County War Production Boards to those persons or groups which can make most effective use of them.

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